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mr. Pear

26-569

March 3, 1959

Dr. Hugh Odishaw, Exec. Dir.
1145th 19th Street, N.W.
Room 716
Washington 6, D.C.

Dear Hugh:

This is to confirm our telephone conversation and to repeat its main points.

1. You have in your hands three documents concerning planetary biology, prepared respectively by Dr. Urey, Dr. Lederberg, and Dr. Luria. I find that there is no essential disagreement between the points of view expressed in these documents, except that Dr. Lederberg appears to consider the occurrence of life on Venus more likely than does Dr. Urey. I would be inclined to be conservative and adopt Lederberg's point of view.

2. I would like to suggest that our delegates at CETEX and COSPAR make the following suggestions.

   a. Organize an international working group to study the problem of sterilization of vehicles to be landed on the moon and the planets, and to advise on the materials to be used in the construction of such vehicles and of the instruments contained therein.

   b. Organize an international study group to plan the biological aspects of planetary exploration; or include this activity in the assignments of the working group mentioned above.

   c. Set up machinery for the collection and prompt dissemination of information which is now available or may become available in the future, and which is pertinent to planetary biology.

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d. Organize a small international conference on planetary biology, to preceed or follow immediately the Spallanzani Memorial Conference to be held in Pavia, Italy, from May 7 to May 9, 1959.

3. I would like to recommend that the proceedings of the meetings on planetary biology held in Cambridge and on the West Coast be promptly edited and distributed to a large number of qualified scientists both in this country and abroad.

4. I consider it very desirable to establish contacts on a scientific level between scientists of various countries interested in planetary biology and especially between those who have the responsibility of planning experiments to be carried out with space vehicles. Letters from the President of our National Academy of Sciences to the presidents of the sister Academies in other countries may be a way of initiating these contacts.

I am enclosing a brief resume of my conversation with Dr. Sinton.

With best wishes for a pleasant and successful trip to Europe,

Sincerely yours,

Bruno Rossi

BR/n
Encl.

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Summary of a Conference with Dr. Sinton of the
Lowell Observatory in Flagstaff
February 17, 1959

Dr. Sinton believes that the surface temperature of Mars varies between -70^{oC} and $+30^{oC}$ over the course of the day. He thinks that the blue haze is likely to be due to ice crystal. He considers that the existence of an iron core for Mars is an open question.

In his spectral measurements, he has examined the region extending from 1 to 4.2 microns. In this region he has found only three significant absorption bands at 3.67, 3.56 and 3.53 microns, respectively. These absorption bands appear to occur only on the dark patches, but the spatial resolution is still very poor. Dr. Sinton does not know of any measurements on infra-red light reflected by terrestrial vegetation; if not available, such measurements should be performed.

We discussed the potential value of several future experiments:

1. One should examine the dark regions for the cholophyll absroption bands in the visible.
2. From a stratospheric platform or from a terrestrial satellite one should try to obtain spectroscopic information on ozone, oxygen, and nitrogen in the Martian atmosphere.
3. From a space probe coming close to Mars one should take pictures of the Martian surface with good spatial resolution using a number of light filters.
4. One should try to obtain information on the "roughness" of the dark and light areas of the Martian surface. This could be done with the radar pulse method, or perhaps by the observation of the "bright shadow"

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when Mars and the Sun are almost exactly in opposition.

Sinton does not feel that his spectral results can be significantly improved by observations from a stratospheric platform; but this point is perhaps debatable.

Bruno Rossi

BR/n